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# Correction: African American mitochondrial DNAs often match mtDNAs found in multiple African ethnic groups

Bert Ely*[1], Jamie Lee Wilson[2], Fatimah Jackson[3] and Bruce A Jackson[2]

Address: [1]Department of Biological Sciences, University of South Carolina, Columbia, South Carolina, 29208, USA, [2]Biomedical Engineering and Biotechnology Program, University of Massachusetts, Lowell, MA 01854, USA and [3]Department of Anthropology, University of Maryland, College Park, MD 20742, USA

Email: Bert Ely* - ely@sc.edu; Jamie Lee Wilson - Jamie_Wilson@uml.edu; Fatimah Jackson - Fatimah@umd.edu; Bruce A Jackson - Bruce_Jackson@uml.edu

* Corresponding author

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After the publication of this work [1], we became aware that AFDIL data set used to construct our database of sub-Saharan mtDNA sequences had been mislabelled, and in fact, did not contain Sierra Leone mtDNA sequences. We have obtained the correct Sierra Leone data set from AFDIL, reconstructed the database using the new file, and reanalyzed all of the data. The size of our database was reduced from 3725 to 3717 since the new Sierra Leone data set contained 109 sequences instead of 117 in the mislabelled data set. The swapping of data sets resulted in a cascade of minor corrections to Tables 2, 3, 4, 5, and 6 (see below). We also corrected an error in the entry for BAM013 in Table 7. However, the only major change was that there were a number of matches of African-American sequences to sequences in the mislabelled data set. Thus, the number of African-American matches to single ethnic groups dropped from a total of 16 to 9 (Table 3) representing just 5% of the African American sequences that we compared to the database.

**Table 2: Characteristics of the sub-Saharan mtDNA HVS-I database**

| Region | | | | Region matched (%) | | | | |
|---|---|---|---|---|---|---|---|---|
| | Total | Unique[a] | Multiple[b] | West | West Central | South | Southeast | East |
| West | 1520 | 35 | 18 | 23 | 20 | 0 | 1 | 2 |
| West Central | 995 | 35 | 28 | 16 | 14 | 0 | 5 | 2 |
| South | 127 | 39 | 15 | 0 | 0 | 39 | 7 | 0 |
| Southeast | 416 | 25 | 54 | 2 | 17 | 1 | 1 | 0 |
| East | 659 | 52 | 14 | 1 | 2 | 0 | 0 | 30 |
| Total | 3717 | 37 | 24 | | | | | |

[a]Haplotypes found once or in a single ethnic group.
[b]Haplotypes found in ethnic groups from three or more regions.

**Table 3: Number of Perfect Matches to African-American HVS-I sequences**

| | Sample | |
|---|---|---|
| Number of Matched Ethnic Groups | Gullah/Geechee | AFDIL |
| None | 30 | 43 |
| 1 | 5 | 4 |
| 2–3 | 6 | 5 |
| 4–9 | 10 | 15 |
| >9 | 23 | 30 |
| Totals | 74 | 97 |

**Table 4: Imperfect matches to the Gullah/Geechee and AFDIL African-American HVS-I sequences**

| | Number of sequences | Number of ethnic groups matched | Number of sequences |
|---|---|---|---|
| One mismatch | 47 | 1 | 14 |
| | | 2–3 | 5 |
| | | 4–9 | 16 |
| | | >9 | 12 |
| More than 1 mismatch | 26 | | ND |

**Table 5: Geographical source of mtDNA HVS-I matches**

| Number of matches | Gullah/Geechee individuals | | | AFDIL African American individuals | | |
|---|---|---|---|---|---|---|
| | W. Africa | E. Africa | Both | W. Africa | E. Africa | Both |
| 1–5 | 13 | 1 | 2 | 11 | 1 | 2 |
| >5 | 4 | 0 | 24 | 5 | 0 | 33 |

**Table 6: Distribution of single region matches**

| Sample | West | W. Central | East |
|---|---|---|---|
| Gullah/Geechee | 7 | 5 | 1 |
| AFDIL AA | 2 | 3 | 1 |

**Table 7: Mitochondrial DNA HVS-I sequences included in this study**

| Ethnic Group | Country | Sample Size | Reference |
|---|---|---|---|
| **West Africa:** | | | |
| multiple | Senegal | 50 | Rando et al. 1998 [9] |
| Serer | Senegal | 23 | Rando et al. 1998 [9] |
| Wolof | Senegal | 48 | Rando et al. 1998 [9] |
| Mandenka | Senegal | 110 | Graven et al. 1995 [10] Watson et al. 1997 [11] |
| multiple | Guiné-Bissau | 372 | Rosa et al. 2004 [12] |
| Malinke | Mali | 61 | Ely et al., unpublished |
| Bambara | Mali | 19 | Ely et al., unpublished |
| Limba | Sierra Leone | 67 | Jackson et al. 2005 [3] |
| Loko | Sierra Leone | 29 | Jackson et al. 2005 [3] |
| Temne | Sierra Leone | 121 | Jackson et al. 2005 [3] |
| Mende | Sierra Leone | 59 | Jackson et al. 2005 [3] |
| unknown | Sierra Leone | 108 | Monson et al. 2002 [13] |
| Fulbe | Nigeria, Niger | 60 | Watson et al. 1997 [11] |
| Hausa | Nigeria, Niger | 20 | Watson et al. 1997 [11] |
| Kanuri | Nigeria, Niger | 14 | Watson et al. 1997 [11] |
| Songhai | Nigeria, Niger | 10 | Watson et al. 1997 [11] |
| Tuareg | Nigeria, Niger | 23 | Watson et al. 1997 [11] |
| Yoruba | Nigeria | 33 | Vigilant et al. 1991 [14]; Watson et al. 1997 [11] |
| unknown | Cabo Verde | 292 | Brehm et al. 2002 [15] |
| **Total** | | **1520** | |
| **West Central Africa:** | | | |
| Kotoko | Cameroon | 18 | Černý et al. 2004 [16] |
| Hide | Cameroon | 23 | Černý et al. 2004 [16] |
| Masa | Cameroon | 31 | Černý et al. 2004 [16] |
| Mafa | Cameroon | 32 | Černý et al. 2004 [16] |
| Bakaka | Cameroon | 50 | Coia et al. 2005 [17] |
| Bamileke | Cameroon | 48 | Coia et al. 2005 [17] |
| Bassa | Cameroon | 46 | Coia et al. 2005 [17] |
| Daba | Cameroon | 20 | Coia et al. 2005 [17] |
| Ewondo | Cameroon | 53 | Coia et al. 2005 [17] |
| Fali | Cameroon | 41 | Coia et al. 2005 [17] |
| Fulbe | Cameroon | 34 | Coia et al. 2005 [17] |
| Mandara | Cameroon | 37 | Coia et al. 2005 [17] |
| Podokwo | Cameroon | 39 | Coia et al. 2005 [17] |
| Tali | Cameroon | 20 | Coia et al. 2005 [17] |
| Tupuri | Cameroon | 25 | Coia et al. 2005 [17] |
| Uldeme | Cameroon | 28 | Coia et al. 2005 [17] |
| Biaka | Central African Republic | 17 | Vigilant et al. 1991 [14] Watson et al. 1997 [11] |
| Mbenzele-Pygmy | Central African Republic | 57 | Destro-Bisol et al. 2004 [18] |
| Angolares | São Tomé and Príncipe | 30 | Trovoada et al. 2004 [19] |
| Forros | São Tomé and Príncipe | 35 | Trovoada et al. 2004 [19] |
| Tongas | São Tomé and Príncipe | 38 | Trovoada et al. 2004 [19] |
| unknown | São Tomé and Príncipe | 50 | Mateu et al. 1997 [20] |

**Table 7: Mitochondrial DNA HVS-I sequences included in this study** *(Continued)*

| | | | |
|---|---|---|---|
| Bubi | Equatorial Guinea | 45 | Mateu et al. 1997 [20] |
| Fang | Equatorial Guinea | 11 | Pinto et al. 1996 [21] |
| Mbuti | Democratic Republic of Congo | 13 | Vigilant et al. 1991 [14] Watson et al. 1997 [11] |
| Bantu-speaking | Cabinda | 110 | Beleza et al. 2005 [4] |
| Mbundu | Angola | 44 | Plaza et al. 2004 [22] |
| **Total** | | **995** | |
| **East Africa:** | | | |
| Nuer | South Sudan | 11 | Krings et al. 1999 [23] |
| Dinka | South Sudan | 47 | Krings et al. 1999 [23] |
| Shilluk | South Sudan | 7 | Krings et al. 1999 [23] |
| multiple | Ethiopia | 21 | Kivisild et al. 2004 [24] |
| Tigrais | Ethiopia, Eritrea | 53 | Kivisild et al. 2004 [24] |
| Gurage | Ethiopia | 21 | Kivisild et al. 2004 [24] |
| Afar | Ethiopia | 16 | Kivisild et al. 2004 [24] |
| Amhara | Ethiopia | 120 | Kivisild et al. 2004 [24] |
| Amhara | Ethiopia | 7 | Quintana-Murci et al. 1999 [25] |
| Oromo | Ethiopia | 33 | Kivisild et al. 2004 [24] |
| Oromo | Kenya, Ethiopia | 18 | Quintana-Murci et al. 1999 [25] |
| unknown | Kenya | 100 | Brandstätter et al. 2004 [26] |
| Kikuyu | Kenya | 24 | Watson et al. 1997 [11] |
| Turkana | Kenya | 37 | Watson et al. 1997 [11] |
| Somali | Kenya, Somalia, Ethiopia | 27 | Watson et al. 1997 [11] |
| Hadza | Tanzania | 17 | Vigilant et al. 1991 [14] |
| Hadza | Tanzania | 49 | Knight et al. 2003 [27] |
| Dakota | Tanzania | 18 | Knight et al. 2003 [27] |
| Iraqw | Tanzania | 12 | Knight et al. 2003 [27] |
| Sukuma | Tanzania | 21 | Knight et al. 2003 [27] |
| **Total** | | **659** | |
| **Southeast Africa:** | | | |
| mulitple | Mozambique | 109 | Pereira et al. 2001 [6] |
| multiple | Mozambique | 307 | Salas et al. 2002 [5] |
| **Total** | | **416** | |
| **South Africa:** | | | |
| !Kung | Botswana | 34 | Vigilant et al. 1991 [14] |
| !Kung | South Africa | 43 | Chen et al. 2000 [28] |
| Khwe | South Africa | 31 | Chen et al. 2000 [28] |
| Herero | Bostwana, Namibia | 19 | Vigilant et al. 1991 [14] |
| **Total** | | **127** | |

**Table 8: Malinke and Bambara Mitochondrial DNA HVS-I sequences included in this study**

| ID | Ethnicity | Haplogroup | Hvs-I polymorphisms[a] |
|---|---|---|---|
| BAM676 | Bambara | L1b | 126 187 189 223 264 270 278 311 |
| BAM612 | Bambara | L1b1 | 126 187 189 223 256 264 270 278 293 311 |
| BAM595 | Bambara | L1b1 | 126 187 189 223 264 266 270 278 293 311 |
| BAM599 | Bambara | L1b1 | 126 187 189 223 264 266 270 278 293 311 |
| BAM600-2 | Bambara | L1b1 | 126 187 189 223 264 270 278 293 311 |
| BAM060 | Bambara | L2a | 223 278 294 368 390 |
| BAM598 | Bambara | L2a1 | 189 192 209 223 278 294 309 390 |
| BAM604 | Bambara | L2a1a | 223 278 286 294 309 390 |
| BAM627 | Bambara | L2b | 114A 213 223 278 290 355 390 |
| BAM659 | Bambara | L2b1 | 114A 129 213 223 278 362 390 |
| BAM037 | Bambara | L2c | 129 223 261 278 390 |
| BAM685 | Bambara | L2c2 | 183 223 264 278 320 390 |
| BAM679-1 | Bambara | L2c2 | 223 264 278 390 |
| BAM629 | Bambara | L2d2 | 111A 145 184 223 239 278 292 355 390 399 400 |
| BAM068 | Bambara | L3b | 124 223 278 362 |
| BAM072 | Bambara | L3e2 | 223 284 320 |
| BAM605 | Bambara | L3e3 | 093 148 223 265 311 |
| BAM027 | Bambara | L3f1 | 049 129 209 223 292 295 311 |
| BAM614 | Bambara | L3f1 | 223 272 292 311 |
| BAM 552 | Malinke | L1b | 111 126 187 189 223 239 270 278 311 |
| BAM 237 | Malinke | L1b | 126 187 189 223 239 264 270 278 311 |
| BAM 357 | Malinke | L1b | 126 187 189 223 239 264 270 278 311 |
| BAM 040 | Malinke | L1b | 126 187 189 223 264 270 278 311 |
| BAM 385 | Malinke | L1b1 | 093 126 145 187 189 223 264 270 278 293 311 |
| BAM 555 | Malinke | L1b1 | 126 187 189 213 223 260 264 270 278 293 311 |
| BAM 225 | Malinke | L1b1 | 126 187 189 223 264 270 278 293 311 362 400 |
| BAM 407 | Malinke | L1c | 129 189 215 223 278 294 311 360 |
| BAM 013 | Malinke | L2a | 189 223 278 390 |
| BAM 397 | Malinke | L2a | 189 192 223 278 294 390 |
| BAM 221 | Malinke | L2a | 189 223 278 294 390 |
| BAM 426 | Malinke | L2a | 223 278 286 294 390 |
| BAM 083 | Malinke | L2a | 223 278 294 390 |
| BAM 414 | Malinke | L2a1 | 093 189 192 223 265 278 294 309 390 |
| BAM 143 | Malinke | L2a1 | 086 223 230 278 294 309 390 |
| BAM 117 | Malinke | L2a1 | 092 223 278 294 309 390 |
| BAM 341 | Malinke | L2a1 | 093 223 278 294 309 390 |
| BAM 534 | Malinke | L2a1 | 140 189 192 223 278 294 309 390 |
| BAM 665 | Malinke | L2a1 | 189 192 223 266 278 294 309 390 |
| BAM 082 | Malinke | L2a1 | 189 192 223 278 294 309 |
| BAM 174 | Malinke | L2a1 | 192 223 278 294 309 390 |
| BAM 195 | Malinke | L2a1 | 192 223 278 294 309 390 |
| BAM 395 | Malinke | L2a1 | 223 278 294 309 368 390 |
| BAM 406 | Malinke | L2a1 | 223 278 294 309 390 |
| BAM 204 | Malinke | L2a1 | 223 278 309 390 |
| BAM 296 | Malinke | L2b1 | 056 114A 129 213 223 278 362 390 |
| BAM 085 | Malinke | L2b1 | 093 114A 129 213 223 278 355 362 390 |
| BAM 577 | Malinke | L2b1 | 114A 129 213 223 278 311 355 362 390 |
| BAM 290 | Malinke | L2b1 | 114A 129 213 223 278 362 390 |
| BAM 319 | Malinke | L2b1 | 114A 129 213 223 278 362 390 |
| BAM 401 | Malinke | L2c | 129 223 261 278 362 390 |

## References

1. Ely B, Wilson JL, Jackson F, Jackson BA: **African American mitochondrial DNAs often match mtDNAs found in multiple African ethnic groups.** *BMC Biology* 2006, **4:**34.